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In the claims:

1. (Currently Amended) A sensing system for a vehicle comprising:

a single vision sensor having a position with coordinates on the vehicle, detecting at least one object, and generating at least one object detection signal; and

a controller coupled to said vision sensor and generating a safety system signal in response to said ~~position~~ coordinates and said at least one object detection signal.

2. (Original) A system as in claim 1 wherein said single vision sensor is a single two-dimensional vision sensor.

3. (Original) A system as in claim 1 wherein said single vision sensor is a vision sensor selected from one of a camera, a charged coupled device, an infrared detector, a sensor having at least one photodiode, and a complementary metal-oxide semiconductor.

4. (Original) A system as in claim 1 wherein said controller performs an adaptive cruise control task in response to said safety system signal.

5. (Original) A system as in claim 1 wherein said controller determines position of said single vision sensor relative to a predetermined reference on the vehicle.

6. (Original) A system as in claim 1 wherein said controller determines position of said single vision sensor relative to a hoodline of the vehicle.

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7. (Original) A system as in claim 1 wherein said controller determines size and up-angle of said at least one object and in response thereto determines range of said at least one object.

8. (Original) A system as in claim 1 further comprising a memory coupled to said controller and storing a predetermined position of said signal vision sensor.

9. (Currently Amended) A method of performing safety system operations within a vehicle comprising:

determining ~~position~~ coordinates of only a single vision sensor on the vehicle;

detecting at least one object with said single vision sensor and generating at least one object detection signal; and

generating a safety system signal in response to said determined ~~position~~ coordinates and said at least one object detection signal.

10. (Original) A method as in claim 9 wherein determining position of a single vision sensor comprises:

determining distance between the single vision sensor and a reference on the vehicle; and

determining relative vertical positioning of said single vision sensor relative to said reference.

11. (Original) A method as in claim 9 further comprising:

initially as an assumed default, determining said at least one object to be at a same elevation as the vehicle; and

generating said object detection signal in response to said initial determination.

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12. (Original) A method as in claim 9 further comprising reducing traveling speed of said at least one detected object when height and width of said object appear to increase in size.

13. (Original) A method as in claim 9 further comprising determining said at least one object to be at a different elevation than the vehicle when said at least one object appears to maintain a same height and width, but change in vertical position.

14. (Original) A method as in claim 9 further comprising determining object parameters and generating said safety system signal in response to said object parameters.

15. (Original) A method as in claim 14 wherein determining object parameters comprise determining up-angle of said detected object.

16. (Original) A method as in claim 14 wherein determining object parameters comprises determining size and up-angle of said at least one object and in response thereto determining range of said at least one object.

17. (Original) A method as in claim 14 wherein determining object parameters comprises determining at least one parameter selected from object range, range rate, height, width, size, and acceleration.

18. (Original) A method as in claim 9 wherein generating a safety system signal comprises generating an adaptive cruise control signal.

19. (Original) A method as in claim 9 further comprising determining orientation of said single vision sensor and generating said safety system signal in response to said orientation.

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20. (Currently Amended) An adaptive cruise control system for a vehicle comprising:

a single vision sensor having a position with coordinates on the vehicle, detecting at least one object, and generating at least one object detection signal; and

a controller coupled to said vision sensor, determining size and up-angle of said at least one object in response to said ~~position~~ coordinates and said at least one object detection signal, and in response thereto determining range of said at least one object;

wherein said controller reduces speed of the vehicle in response to said range.